UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,252	10/16/2001	Myung Sub Sim	K-0329	2252

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EXAMINER
WILLIAMS, LAWRENCE B

ART UNIT	PAPER NUMBER
2634	

DATE MAILED: 01/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

	Application No.	Applicant(s)
Office Action Summary	09/977,252	SIM, MYUNG SUB
	Examiner	Art Unit	
	Lawrence B Williams	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 October 2001*.
2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.
3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.
     4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5)☒ Claim(s) *1-14* is/are allowed.
6)☒ Claim(s) *15-21* is/are rejected.
7)☒ Claim(s) *16-17, 19, 20* is/are objected to.
8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.
10)☒ The drawing(s) filed on *16 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
     a)☒ All   b)☐ Some *   c)☐ None of:
       1.☒ Certified copies of the priority documents have been received.
       2.☐ Certified copies of the priority documents have been received in Application No. _____.
       3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
     * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)	4) ☐ Interview Summary (PTO-413)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)	5) ☐ Notice of Informal Patent Application (PTO-152)
Paper No(s)/Mail Date _____ .	6) ☐ Other: _____ .

DETAILED ACTION

Drawings

1.   The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the backward processor, forward processor, memory** and **output determination module** as disclosed in claim 1 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2.   Figure 1 should be designated by a legend such as --Prior Art-- because only that which is

old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR

1.121(d) are required in reply to the Office action to avoid abandonment of the application. The

replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR

1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted

by the examiner, the applicant will be notified and informed of any required corrective action in

the next Office action. The objection to the drawings will not be held in abeyance.

Specification

3.   The abstract of the disclosure is objected to because:

a.) Examiner suggests applicant change "of" to "for" in line 1.

b.) Examiner suggests applicant rewrite line 4 "Third resultant values calculated by a

forward processing" for clarification. Correction is required. See MPEP § 608.01(b).

4.   The specification has not been checked to the extent necessary to determine the presence

of all possible minor errors. Applicant's cooperation is requested in correcting any errors of

which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
subject matter, which the applicant regards as his invention.

6.   Claims 15-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention. Applicant recites the limitation "calculating and storing second resultant values

obtained by the backward processor" in line 3 of the claim. Applicant has made no prior

disclosure of a first resultant value or any values determined by the backward processor.

Claim Rejections - 35 USC § 102

7.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8.   Claims 15, 18, 21 are rejected under 35 U.S.C. 102(e) as being anticipated by Xu (US

Patent 6,829,313 B1).

        (1) With regard to claim 15, Xu discloses in Fig. 7, a method of turbo-decoding a

received sequence using a Maximum Posteriori algorithm, comprising: performing a learning by

a backward processor (112) for a predetermined length; calculating and storing (114) first

resultant values obtained by the backward processor; calculating second resultant values by a

forward processor (110) that overlaps in time with the learning; and determining a decoding

symbol output (116) using the second resultant values and the stored second resultant values

(col. 7, lines 40-col. 8, line 41).

(2) With regard to claim 18, though Xu does not explicitly teach the type of memory component, one skilled in the art would appreciate that the choice of memory device would be a mere design choice especially in view of Xu's remarks concerning specific components and functions (col. 16, lines 53-57).

(3) With regard to claim 21, Xu also discloses the method of claim 15, further comprising: outputting a plurality of the decoding symbol outputs as decoded values, wherein each of the decoded values corresponds to an input value of a W-symbol length sequence; and the decoded values are output in the same order as the order of receipt of the corresponding input value of the W-symbol length sequence (col. 7, line 57-col. 8, line 7).

Allowable Subject Matter

9.   Claims 1-14 are allowed.

10.   Claims 16, 17, 19 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

11.   The following is a statement of reasons for the indication of allowable subject matter: The instant application discloses a method and apparatus for decoding turbo codes using a sliding window method. The prior art teaches methods and apparatuses for decoding using a sliding window method but fail to teach the method comprising; "a memory that stores the second resultant values in a first order and outputs the second resultant values in a second order

that is the reverse of the first order; and the calculation of the first resultant values for the next

window is performed after the calculation of the second resultant values is completed" as

disclosed in claims 1 and 8.

Conclusion

12.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.

        a.) Orio discloses in US 2004/0039769 A1 a Method For Decoding Error Correcting

Code, Its Program And Its Device.

        b.) Ariel et al. discloses in US Patent 6,452,979 B1 Soft Output Decoder For

Convolutional Codes.

        c.) Ulmer et al. discloses in US Patent 6,189,126 B1 Efficient Trellis State Metric

Normalization.

        d.) Ross et al. discloses in US Patent 6,128,765 Maximum A Posterior Estimator With

Fast Sigma Calculator.

        e.) Koehler et al. discloses in US Patent 6,580,767 B1 Cache And Caching Method For

Conventional Decoders.

        f.) Okamura discloses in 2002/0094038 A1 Error-Correcting Code Decoding Method

And Error-correcting Code Decoding Apparatus.

        g.) Eidson discloses in US Patent 6,813,743 B1 Sliding Window Technique For Map

Decoders.

13.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037.

The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin can be reached on 571-272-3056. The fax phone number for the

organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
January 5, 2005

AMANDA T. LE
PRIMARY EXAMINER